



Seismic and Wind Structural Design Standards

CITY OF NEWARK, CALIFORNIA

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Seismic Design Standards

The City of Newark, along with all other cities in the Bay Area, is vulnerable to damage caused by earthquakes. There is a 23 percent probability of a 7.0 magnitude earthquake occurring along the Southern Hayward fault in the next 30 years. The populated areas of the City lie between two and six miles from the Southern Hayward fault.

The California Building Code requires that each structure be assigned a Seismic Design Category which will be used in the structural design of the structure. There are six Seismic Design Categories listed 'A' through 'F' with 'A' having the lowest vulnerability to earthquakes and 'F' having the highest vulnerability to earthquakes. Assigning a Seismic Design Category to a structure involves the anticipated force of an earthquake in the general area of the structure, the soil type which will support the structure and the type of occupancy.

Force: Spectral Response Acceleration is used in the formula for determining the force and is based upon location. The Spectral Response Accelerations for short period (S_S) and 1-second period (S_1) for all locations in the City of Newark are 1.500 for S_S and 0.600 for S_1 .

Soil Type: For large or complicated projects or housing tracts a soils report would be generated which would identify the soil type. For single family dwellings and small commercial projects not a part of a subdivision a soil type 'D' can be used unless other soils have been identified.

Type of Occupancy: Occupancy category I is assigned to agricultural buildings, temporary facilities and minor storage facilities that represent a low hazard to human life in the event of failure. Occupancy category II is assigned to most buildings. An occupancy category III is for buildings with large numbers of persons such as schools with more than 250 students, assembly uses with more than 300 people and any building with more than 5,000 people. An occupancy category IV is for hospitals, acute care facilities, and fire, police and emergency response stations.

The California Geological Survey has issued Official Seismic Hazard Zone maps delineating areas prone to earthquake-induced landslides and soil liquefaction. The entire City is within a potential liquefaction zone. There are no potential landslide zones in the City. It should be noted that the liquefaction zone the City is in does not mean all existing construction is hazardous, nor is the liquefaction potential uniform throughout the zone. The purpose of establishing the liquefaction zone is to require developers to conduct specific site studies to identify actual site conditions which could lead to liquefaction and employ mitigating construction methods if needed. For further information please visit the California Geological Survey web site at www.conservation.ca.gov.

Wind Design Standards

The California Building Code requires that each site be assigned a basic wind speed and an exposure category. The basic wind speed for the City is 85 miles per hour. The entire City is within exposure designation "C" unless the structural engineer or architect can demonstrate a different exposure.